

REMARKS

Claims 1-4, 5-15, and 17-20 are originally pending in the application. The present amendments are merely ones of form, and do not alter the scope of the present claims.

Applicant appreciates the telephone interview granted by the Examiner on January 30, 2009, conducted with Applicant's representative. The Interview Summary issued on February 3, 2009 contains an accurate summary of the substance of the interview. Applicant further adds that the Examiner was willing to accept the affidavit referred to in the Interview Summary, even though the present application is under Final Rejection. Thus, Applicant respectfully requests entry and consideration of the present Amendment, at least for purposes of putting the application in better condition for appeal. The only amendments to the present claims are ones of form, so no further search is required.

Claims 1-4, 6-15, and 17-20 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 3,894,572, to Moore, Jr., hereinafter "Moore." Claims 1, 14, and 15 are independent.

Claim 1 recites a method for the production of a shell mould. The method comprises the steps of dipping a preformed expendable pattern into a slurry of refractory particles and colloidal liquid binder whereby to form a coating layer on said pattern, depositing particles of refractory material onto the coating, and drying. These steps are repeated as often as required to produce a shell mould having a primary coating layer and at least one secondary coating layer. During at least one performance of the depositing step, a gel-forming material is also deposited onto the coating layer formed in the dipping step, such that after contact with the coating layer, moisture is absorbed by the gel-forming material. This causes gelation of the colloidal binder, so reducing the time required for the drying step. The gel-forming material is a super absorbent polymer.

Moore discloses a process for forming a refractory laminate on the surface of a support structure. The process comprises the steps of dipping the structure into a bath of positively charged colloidal particles to form a coating on the surface, and applying the surface to a particulate refractory material containing a chemical setting agent. (Abstract) The coating containing the positively charged colloidal particles is "stuccoed" by interaction with the refractory material containing the setting agent. (col. 3, l. 19-22) The chemical setting agent can comprise homopolymers and copolymers of acrylic acid and methacrylic acid. (col. 10, l. 16-18)

The Office Action states, on pp. 2-3 and 4, that since Moore discloses homopolymers of acrylic acid and methacrylic acid, it would have been obvious to include polyacrylamide or polyacrylate in the method of the present claims. Claim 1, however, recites a gel forming material that is a superabsorbent polymer, which is not disclosed or suggested at all in Moore.

In support of this assertion, Applicant submits the attached declaration from inventor Samantha Jones, hereinafter the "Jones declaration." As stated in the Jones declaration, superabsorbent polymers are known as defining a specific class of polymers that have specific structures, and specific properties. For example, superabsorbent polymers have a cross-linked, ionic, and interconnected structure that allows them to absorb large amounts of water. (Jones declaration, ¶8) The polymers cited in Moore are not superabsorbent.

The essential difference between the superabsorbent polymers of the present claims, and the polymers disclosed in Moore, is that the polymers of Moore are not cross-linked. (Jones declaration, ¶9) As mentioned in the Buchholz article attached to the Jones declaration, the cross-linked, interconnected structure of a superabsorbent polymer is essential to its ability to absorb moisture. The moisture is held as a gel in a "solid, rubbery state," which prevents the moisture from leaking. (Jones declaration, ¶8)

The only mention of cross-linking in Moore is between the colloidal particles, and not within the polymer setting agent itself. (Moore, col. 8, l. 39-41) This cross-linking is a result of the chemical interaction between the setting agent and the colloidal particles. In the superabsorbent polymers of claim 1, the cross-linking is within the polymer itself. (Jones declaration, ¶9)

Furthermore, the chemical setting agents used in Moore are chosen for their high anionic density, which results in strong interaction between the anionic portions of the polymers, and the positively charged sol particles. (Jones declaration, ¶10, *citing* Moore, col. 8, l. 34-41) Cross-linking does not provide any additional anionic functionality, and would therefore not add any value to the polymer setting agents of Moore. (Jones declaration, ¶11) There is no disclosure in Moore of cross-linking between the chains of a polymer, no teaching of a need for the polymer setting agent to absorb moisture, or a discussion of the ability of the polymer setting agents to do so, as required in the present claims.

Therefore, one of ordinary skill in the art would not have any reason to read Moore as disclosing cross-linked polymers, such as the superabsorbent polymer of claim 1, because cross-linking would not be needed in the process disclosed in therein, nor would an ability for the chemical setting agent to absorb moisture.

Claim 1 is therefore patentable over Moore under 35 U.S.C. §103(a). Claims 2-4 and 6-13 all depend from claim 1, and are also patentable over Moore for at least the reasons provided above with respect to claim 1.

Claim 14 recites a shell mould producible by a method comprising, *inter alia*, depositing a super absorbent polymer onto a coating layer. As stated above with respect to claim 1, Moore fails to disclose or suggest a super absorbent polymer. Claim 14 is therefore also patentable over Moore under 35 U.S.C. §103(a).

Claim 15 is directed to an unfired precursor to a shell mould for producing a

casting. The precursor comprises, *inter alia*, at least one layer comprising a super absorbent polymer. As stated above with respect to claim 1, Moore fails to disclose or suggest a super absorbent polymer. Claim 15 is therefore also patentable over Moore under 35 U.S.C. §103(a), as are claims 17-20, which depend therefrom.

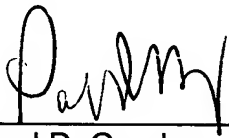
For the reasons discussed above, the rejection of claims 1-4, 6-15, and 17-20 under 35 U.S.C. §103(a) as being unpatentable over Moore has been overcome. Applicants respectfully request that it be reconsidered and withdrawn.

Claims 1-4, 6-15, and 17-20 have been provisionally rejected under co-pending United States Application No. 10/587,425. On April 12, 2009, Applicant filed a terminal disclaimer in the '425 Application, thus rendering this rejection moot. Applicant respectfully requests that it be withdrawn.

An indication of the allowability of all pending claims by issuance of a Notice of Allowance is earnestly solicited.

Respectfully submitted,

Date: 4/16/09



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